U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

APPEAL BRIEF TRANSMITTAL	Docket Number: 10191/1566	Conf. No. 5238

Application Number	Filing Date	Examiner	Art Unit
09/719,118	February 28, 2001	Tamra DICUS	1774

Invention Title	Inventor
TEMPERATURE SENSOR HAVING AT LEAST ONE CONDUCTOR TRACK AND METHOD FOR THE MANUFACTURE OF A TEMPERATURE SENSOR	Thomas SCHULTE et al.

Address to:

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Date: 9/3, 2004 Reg. No. 36,197

Signature: _____
Jong H. Lee

Further to the Notice of Appeal dated April 30, 2004 (filed at the PTO on May 3, 2004) for the above-referenced application, enclosed are three copies of an Appeal Brief. Accompanying the Appeal Brief is the Appendix to the Appeal Brief. A two-month extension of time for filing the Appeal Brief is requested.

The Commissioner is hereby authorized to charge payment of the 37 C.F.R. § 1.17(c) appeal brief filing fee of **$330.00**, and a two-month extension fee of **$420.00**, and any additional fees associated with this communication to the deposit account of **Kenyon & Kenyon**, deposit account number **11-0600**.

Dated: 9/3, 2004 By: _____
Richard L. Mayer (Reg. No. 22,490)
R. No. 36,197

KENYON & KENYON
One Broadway
New York, N.Y. 10004
(212) 908-6479 (telephone)
(212) 425-5288 (facsimile)

CUSTOMER NO. 26646
PATENT & TRADEMARK OFFICE

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[10191/1566]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants	:	Thomas SCHULTE et al.
Serial No.	:	09/719,118
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For	:	TEMPERATURE SENSOR HAVING AT LEAST ONE CONDUCTOR TRACK AND METHOD FOR THE MANUFACTURE OF A TEMPERATURE SENSOR
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APPELLANTS' APPEAL BRIEF UNDER 37 C.F.R. § 1.192

S I R :

Applicants filed a Notice of Appeal dated April 30, 2004 (filed at the PTO on May 3, 2004) appealing from the Final Office Action dated November 19, 2003, in which claims 14-24 of the above-identified application were finally rejected. This Brief is submitted by Applicants in support of their appeal.

09/07/2004 AADOF01 00000062 110600 09719118
01 FC:1402 330.00 DA

09/07/2004 AADOF01 00000062 110600 09719118
02 FC:1252 420.00 DA

I. REAL PARTY IN INTEREST

The above-identified Applicants and Robert Bosch GmbH of Stuttgart, Germany, are the real parties in interest.

II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicants.

III. STATUS OF CLAIMS

Claims 14-24 are pending in this application. Applicants appealed from the final rejection of claims 14-24 made in the final Office Action mailed by the Patent Office on November 19, 2003. Of the claims presently on appeal, claim 14 is independent; claims 15-20 and 22-24 are dependent on claim 14; and claim 21 is dependent on claim 20.

IV. STATUS OF AMENDMENTS

No amendments were made subsequent to the final Office Action mailed on November 19, 2003.

V. SUMMARY OF THE INVENTION

The present invention provides a novel method for manufacturing a temperature sensor having at least one conductor track 14 made of a metal, which covers a surface 24 of a carrier made of a metal oxide, metal carbide, or metal nitride. (Abstract; Figs. 1 and 2). Using the sensor, a temperature-dependent change in a resistance of the conductor track is measured and evaluated. (Abstract).

The present invention provides the advantage that conductor track(s) having high resistance may be manufactured in a simple, cost-effective

manner. Due to the fact that the conductor tracks are formed of a metal, which covers one surface of a carrier (substrate) made of a metal oxide, carbide, or nitride, the resistance is simply determined by one thickness of the metal layer, thereby eliminating the known temperature sensors' disadvantage of being constrained by the so-called "percolation limit," which is explained below. (P. 2, l. 14-19).

The conductor track of known temperature sensors is usually made from a cermet, because cermets are characterized by their especially large resistance temperature coefficients. (P. 1, l. 8-13). A prerequisite for measuring the resistance is an existing conductivity, and the known sensors have the disadvantage that the conductivity of cermets is limited to resistances in the ohm-range. (P. 1, l. 13-17). However, a conductor track that exhibits resistances having several hundred ohms is favorable for an error-free measurement of the temperature changes, and the resistance can, in fact, be increased by reducing the volumetric component of the metal in the cermet, yet the cermet becomes non-conducting below a certain percolation limit. (P. 1, l. 17-24). To obtain higher resistances, the conductor track in the known cermet-based temperature sensors is lengthened, thereby rendering it impossible to obtain high resistances in small spaces. (P. 1, l. 24-27).

The temperature sensor in accordance with the present invention only requires a small amount of space and is distinguished by a resistance range that is favorable for temperature measurements. (P. 2, l. 34 - p. 3, l. 1).

Figure 1 shows a temperature sensor 10 according to the present invention, which sensor may be a functional element of a laminated layer sensor. (P. 3, l. 18-21). In this case, the sensor has a layer 12, in which a conductor track 14 is embedded that is connected, in turn, via two contact points 16 to an evaluation device. (P. 3, l. 21-24). A temperature can be determined by measuring a resistance of conductor track 14, which is loaded with an a.c. voltage, for example. (P. 3, l. 26-28). If temperature sensor 10 is

used in the layer sensor, then conductor track 14 is usually made of a metal oxide, such as zirconium dioxide or aluminum oxide, and of a metal such as platinum. (P. 3, l. 30-33).

Figure 2 shows a schematic cross-section of two particles 20 which constitute a part of the conductor track 14. (P. 3, l. 35-36). Particles 20 include an inner core 22, a boundary layer 28, and an outer metal layer 26 disposed on a surface 24. (P. 3, l. 36 - p. 4, l. 2).

In forming each particle 20, a carrier made of a metal oxide, metal carbide, or metal nitride, which is used as a powder having a selectable grain size, is used as the base material, for example zirconium dioxide and aluminum oxide grains. (P. 4, l. 4-8). One single grain of the carrier has surface 24. (P. 4, l. 6-7).

Palladium nuclei, which are used as seed crystals for the current-less deposition of the metals, which are to later form metal layer 26, are initially deposited by reduction on surface 24, for example metals such as cobalt, nickel, copper, or platinum, can be deposited. (P. 4, l. 10-17).

Once the metals are deposited on surface 24, the metals are subjected to a thermal treatment which compresses and permanently joins metallic layer 26 to surface 24, and which thermal treatment simultaneously creates a conductive layer serving as conductor track 14, in that metallic layers 26 of adjacent particles 20 fuse together. (P. 4, l. 19-24). The metal can diffuse into carrier grain 22 during the thermal treatment, thereby forming boundary layer 28. (P. 4, l. 26-27). A layer thickness "d" of metal layer 26 can be influenced by the duration of the treatment and the temperature level. (P. 4, l. 27-29).

The resistance of such a conductor track 14 is essentially dependent upon metal layer 26, which, in this context, represents a layer

resistance, the magnitude of which is determined by layer thickness d, which is a measure of the conductor track cross-section. (P. 4, l. 31-35). By reducing layer thickness d, one can increase the resistance of conductor track 14. (P. 4, l. 35-36).

VI. ISSUES FOR REVIEW

The following issues are presented for review on appeal in this case:

(A) Whether claims 14-19 and 22-24 are rendered obvious under 35 U.S.C. § 103(a) by the combination of U.S. Patent No. 4,659,960 to Toya et al. (hereafter "Toya"), U.S. Patent No. 4,832,988 to Bogenschutz et al. (hereafter "Bogenschutz"), and U.S. Patent No. 6,076,965 to Rosen et al. (hereafter "Rosen").

(B) Whether claims 14 and 20-21 are rendered obvious under 35 U.S.C. § 103(a) by the combination of Toya, Rosen and U.S. Patent No. 4,387,258 to Vadekar et al. (hereafter "Vadekar").

VII. GROUPING OF CLAIMS

For each ground of rejection, all claims subject to the rejection will be argued as a single group.

VIII. ARGUMENTS

A. Rejection of Claims 14-19 and 22-24

Claims 14-19 and 22-24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Toya in view of Bogenschutz and Rosen. Applicants respectfully submit that combination of Toya, Bogenschutz, and Rosen does not render obvious claims 14-19 and 22-24 for at least the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re

Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 14 recites a method for manufacturing a temperature sensor, in which an evaluation device is connected to at least one conductor track. More specifically, claim 14 recites that the evaluation device is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track which is formed by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment.

In the Advisory Action mailed on March 10, 2004, the Examiner presented the following contentions: a) Toya teaches conductor tracks of nickel or metal; b) Bogenschutz teaches various ways of depositing metal, including current-less deposition; c) Rosen teaches connecting an evaluation device; and d) Applicants "appear to argue each reference individually instead of analyzing the combination."

As an initial matter, Applicants address the Examiner's assertion made in the Advisory Action that Applicants "appear to argue each reference individually instead of analyzing the combination." Applicants note that there is no possible way to present an analysis of the asserted combination of the

applied references without presenting some analyses of individual applied references. Furthermore, to the extent Applicants present analyses of individual references, such analyses by Applicants are necessitated by the Examiner's discussions of individual references in the final rejection. Indeed, Applicants note that the Examiner's obviousness analysis in the Final Office Action reflects an attempt to selectively pick and choose only particular components from various references to arrive at the claimed invention, while ignoring the teachings of the applied references which are not helpful to the Examiner's conclusion. However, Applicants note that a prior art reference must be ***considered in its entirety***, i.e., as a whole, not just the portions deemed helpful to the Examiner's position. See W. L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Furthermore, Applicants note that in determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the ***differences themselves*** would have been obvious, but whether the ***claimed invention as a whole would have been obvious***. See Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 U.S.P.Q. 871 (Fed. Cir. 1983).

The Examiner cites Toya for allegedly teaching that "an electrode axis (conductor track) of **nickel or precious metals such as platinum covers the surface of the electrode element.**" Applicants note that the electrode axis disclosed by Toya is "an electrode axis (2) made of Ni or other heat-resistant non-precious metals," which is joined to the electrode element 3 "by means of a conventional electro-conductive glass seal (4) which is a mixture of glass and a metal powder." (Toya, col. 2, lines 48-49 and 56-59). In this regard, **the electrode axis 2 does not cover the electrode element 3, and more importantly, is not formed by a currentless deposition of a metal onto a surface of carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**. Accordingly, the actual teachings of Toya clearly contradicts the Examiner's assertion that "Toya teaches conductor tracks of nickel or metal."

Regarding Rosen, which the Examiner cites for allegedly teaching "connecting an evaluation device," Applicants note that the actual teachings of Rosen do not disclose **connecting an evaluation device to the at least one conductor track, which is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track** formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and/or a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Although the Examiner asserts in the final Office Action of 11/19/03 that "an electrical resistance measuring device 110 is connected to the sensing element (temperature sensor) via leads 106 (conductor tracks)," (Final Office Action, pp. 3-4), Applicants note that the electrical measuring device 110 does not measure and evaluate a temperature-dependent change in resistance of the so-called conductor tracks (i.e., leads) 106. Instead, Rosen discloses "an electrical measuring device 110 adapted to measure the electrical resistance ***through the sensing element*** [102]." (Rosen, col. 7, lines 27 to 29) (emphasis added). In this regard, Rosen further provides that "[t]he particular resistance-measuring device illustrated in FIGS. 4-5 is a Wheatstone bridge," and that "[t]he resistance required to bring the bridge into balance is a measure of the resistance ***through the sensing element***." (Rosen, col. 7, lines 29 to 30 and lines 39 to 41) (emphasis added). Accordingly, the electrical resistance measuring device 110 is configured to measure and evaluate a temperature-dependent change in a monocrystalline nickel-cobalt-manganese oxide spinel, but **not a temperature-dependent change in at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment**, as recited in claim 14.

Regarding the teachings of Bogenschutz, which the Examiner cites for allegedly teaching "the various ways of depositing metal including currentless deposition (at col. 1, lines 16-50) and thermal treatments (at col. 4,

lines 20-28)," Applicants note that Bogenschutz **does not disclose forming at least one conductor track by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and/or a metal carbide**. In particular, the various ways of depositing metal disclosed by Bogenschutz **do not include depositing a metal onto a surface of carrier composed of metal oxide, a metal nitride and/or a metal carbide to form at least one conductor track**, as recited in claim 14.

Accordingly, even if one assumes for the sake of argument that there were some motivation to combine the teachings of Toya, Bogenschutz, and Rosen references, such combination does not render obvious claim 14 or its dependent claims 15-19 and 22-24.

It is submitted that the Examiner's assertion that "it would have been obvious to . . . modify the spark plug of Toya to include an evaluation device since Rosen teaches sensing elements connected to electrical resistance devices for the purpose of providing connections in series as taught by Rosen at col. 7, lines 14-49" is plainly based on nothing more than hindsight reasoning. Although the Examiner asserts that "any judgement on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning," the Examiner acknowledges that a proper analysis of obviousness may take into account "**only knowledge which was within the level of ordinary skill at the time the claimed invention was made**, and does not include knowledge gleaned only from applicant's disclosure." Indeed, Applicants submit that without the knowledge gleaned from Applicants' disclosure, there is no motivation for making the modification asserted by the Examiner. In this regard, in rejecting a claim under 35 U.S.C. § 103, Applicants' invention "*must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time*." Applicants note that even if the Examiner's assertion is true that "Rosen teaches sensing elements connected to electrical resistance devices **for the purpose of providing connections in series** as taught by

Rosen at col. 7, lines 14-49," it is simply unclear why a person of ordinary skill in the art would be motivated (i.e., consider it a benefit) to modify the spark plug of Toya **for the purpose of providing connections in series**. Indeed, Applicants submit that the "motivation" for combining the asserted prior art references exists solely in the Applicants' disclosure, and the Examiner's asserted combination "simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." In re Dembiczak, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999).

Moreover, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Examiner's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. The standards for an obviousness analysis as explained in In re Fine and In re Jones clearly lead to the conclusion that the Examiner is using a subjective "obvious to try" standard in support of the final rejection, which is clearly improper. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

More recently, the Federal Circuit noted in the case of In re Kotzab that even if a claim concerns a "technologically simple concept," there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having **no knowledge of the claimed subject matter** to "make the combination in the manner claimed":

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added).

Applicants submit that the Examiner has provided no **objective** evidence whatsoever, but only conclusory hindsight, reconstruction and speculation in support of the rejection, which clearly cannot support a proper obviousness finding. Accordingly, Applicants respectfully submit that there is no evidence that the references relied upon, whether taken individually or in combination, would provide the features and benefits of claim 14. It is therefore respectfully submitted that claim 14 is allowable over the applied references. Claims 15-19 and 22-24 ultimately depend from claim 14, and therefore these claims are allowable for at least the same reasons that claim 14 is allowable.

In view of the foregoing, it is respectfully submitted that the final rejection of claims 14-19 and 22-24 over the combination of Toya, Bogenschutz and Rosen should be reversed.

B. Rejection of Claims 14 and 20-21

Claims 14 and 20-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Toya in view of Rosen and further in view of Vadekar.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all

of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 14 recites a method for manufacturing a temperature sensor, in which an evaluation device is connected to at least one conductor track. More specifically, claim 14 recites that the evaluation device is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track which is formed by a currentless deposition of a metal onto a surface of a carrier composed of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment.

In support of the rejection, the Examiner states that "Toya in view of Rosen essentially teaches the claimed invention," and that "Vadekar teaches selective hydrogenation using palladium on crystalline silica." Applicants note that even if one assumes for the sake of argument that there were some motivation to combine the references as suggested, Vadekar clearly does not cure the critical deficiencies of the combination of Toya and Rosen as applied against claim 14, as explained in further detail below.

Although the Examiner cites Toya for allegedly teaching that "an electrode axis (conductor track) of **nickel or precious metals such as platinum covers the surface of the electrode element,**" Applicants note that the electrode axis disclosed by Toya is "an electrode axis (2) made of Ni or other heat-resistant non-precious metals," which is joined to the electrode element 3 "by means of a conventional electro-conductive glass seal (4) which is a mixture of glass and a metal powder." (Toya, col. 2, lines 48-49 and 56-59). In this regard, **the electrode axis 2 does not cover the electrode element 3, and more importantly, is not formed by a currentless deposition of a metal onto a surface of carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**. Accordingly, the actual teachings of Toya clearly contradicts the Examiner's assertion that "Toya

teaches conductor tracks of nickel or metal."

Although the Examiner cites Rosen for allegedly teaching "connecting an evaluation device," Applicants note that the actual teachings of Rosen do not disclose **connecting an evaluation device to the at least one conductor track, which is configured to measure and evaluate a temperature-dependent change in resistance of the at least one conductor track** formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and/or a metal carbide, and by subsequent thermal treatment, as recited in claim 14. Although the Examiner asserts in the final Office Action of 11/19/03 that "an electrical resistance measuring device 110 is connected to the sensing element (temperature sensor) via leads 106 (conductor tracks)," (Final Office Action, pp. 3-4), Applicants note that the electrical measuring device 110 does not measure and evaluate a temperature-dependent change in resistance of the so-called conductor tracks (i.e., leads) 106. Instead, Rosen discloses "an electrical measuring device 110 adapted to measure the electrical resistance ***through the sensing element*** [102]." (Rosen, col. 7, lines 27 to 29) (emphasis added). In this regard, Rosen further provides that "[t]he particular resistance-measuring device illustrated in FIGS. 4-5 is a Wheatstone bridge," and that "[t]he resistance required to bring the bridge into balance is a measure of the resistance ***through the sensing element***." (Rosen, col. 7, lines 29 to 30 and lines 39 to 41) (emphasis added). Accordingly, the electrical resistance measuring device 110 is configured to measure and evaluate a temperature-dependent change in a monocrystalline nickel-cobalt-manganese oxide spinel, but **not a temperature-dependent change in at least one conductor track formed by a currentless deposition of a metal onto a surface of a carrier composed of at least one of a metal oxide, a metal nitride and a metal carbide, and by subsequent thermal treatment**, as recited in claim 14.

Vadekar is cited by the Examiner merely for the purpose of teaching

selective hydrogenation using palladium on crystalline silica as a substrate with deposited palladium via vapor or gas deposition and reduction. (See Final Office Action, p. 4). Nothing in Vadekar teaches or suggests the claimed feature of "at least one conductor track" **formed by a currentless deposition of a metal onto a surface of carrier composed of a metal oxide, a metal nitride and/or a metal carbide, and by a subsequent thermal treatment**. Similarly, nothing in Vadekar teaches or suggests the claimed feature of "connecting an evaluation device configured to measure and evaluate a temperature-dependent change in a resistance of the at least one conductor track to the at least one conductor track."

Accordingly, Applicants respectfully submit that the combination of Toya, Rosen, and Vadekar does not render claim 14 or its dependent claims 20 and 21 unpatentable. Reversal of the rejection is therefore respectfully requested.

IX. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 14-24 should be reversed.

Respectfully submitted,
KENYON & KENYON

Dated: 9/3, 2004

By: _____
Richard L. Mayer
Reg. No. 22,490

R. No. 36,197)

CUSTOMER NO. 26646
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[10191/1566]

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Date: 9/3, 2004 Reg. No. 36,197

Signature: _____
Jong H. Lee

APPENDIX TO APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 1.192

S I R :

The claims involved in this appeal, claims 14-24, in their current form after entry of all amendments presented during the course of prosecution, are set forth below:

APPEALED CLAIMS:

14. A method for manufacturing a temperature sensor comprising the steps of:

forming at least one conductor track by a currentless deposition of a metal onto a surface of a carrier and by a subsequent thermal treatment, the carrier being composed of at least one of a metal oxide, a metal nitride and a metal carbide, and

connecting an evaluation device configured to measure and evaluate a temperature-dependent change in a resistance of the at least one conductor track to the at least one conductor track.

15. The method according to claim 14, wherein a layer thickness of a metal layer situated on the surface of the carrier is determined by at least one of a duration and a selected temperature during a thermal treatment.

16. The method according to claim 14, wherein the carrier is used as a powder.

17. The method according to claim 14, wherein the temperature sensor is situated in a layer of a laminated layer sensor.

18. The method according to claim 14, wherein the carrier includes at least one of aluminum oxide and zirconium dioxide.

19. The method according to claim 14, wherein the metal includes at least one of cobalt, nickel, copper, and platinum.

20. The method according to claim 14, wherein palladium nuclei are used

as seed crystals for the deposition.

21. The method according to claim 20, wherein the palladium nuclei are initially deposited by reduction.

22. The method according to claim 14, wherein the thermal treatment causes the deposited metal to diffuse into an inner core of the carrier to form a boundary layer.

23. The method according to claim 14, wherein the thermal treatment causes adjacent particles of the carrier to fuse together in a region of the metal layer.

24. The method according to claim 14, further comprising:

loading the at least one conductor track with an alternating current voltage.

Respectfully submitted,

KENYON & KENYON

Dated: 9/3, 2004

By: [signature]
Richard L. Mayer
Reg. No. 22,490

[signature]
Reg. No. 36,197

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